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Observations of Comets made at the Liverpool Observatory, 1892–93.

By William E. Plummer, M.A.

The following observations were made with the 8-inch equatoreal of the Liverpool Observatory, employing either a parallel wire micrometer, or an arrangement similar to that discussed by Colonel Tupman, *Monthly Notices*, vol. xlviii. p. 96, and known as the cross reticule. Of this latter form of micrometer, the observatory possesses two specimens, but neither is quite satisfactory in use. The principal defect seems to arise from the difficulty in destroying parallax, owing partially to the fact that the "cross wires," formed apparently of watch spring, are not in one and the same plane, and this difficulty seems to be aggravated by the low power of the eyepiece. Although all the precautions to which Colonel Tupman calls attention in his paper have been carefully attended to, it is feared that the places of the comets determined with this micrometer are not very trustworthy. They are marked by the abbreviation "Ret." I have in hand a series of observations to enable me to compare the relative accuracy of the determinations derived from the use of the "cross reticule" and the parallel wire micrometer, but the discrepancies in the results obtained on different nights are perplexing and inexplicable.

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Observations of Comet VI., 1892.

Greenwich Mean Time of Observation.	☄ − ✱ R.A.	No. of Comps.	Apparent R.A. of Comet.	☄ − ✱ Declination.	No. of Comps.	Apparent Declination of Comet.	Log. Fact. of Parallax R.A.	Log. Fact. of Parallax δ	Reference to Comp. ✱
1892. d h m s	m s		h m s	′ ″		° ′ ″			
Sept. 24 12 39 3	+0 26·49	24	7 9 40·39	+ 2 23·4	6	+28 7 28·9	9·8282*n*	9·8671	*a*
25 12 34 11	−5 18·32	24	7 12 33·50	+ 2 59·6	6	+27 53 47·8	9·8265*n*	9·8664	*b*
29 12 58 22	−1 42·27	10	7 24 27·87	− 3 52·4	2	+26 53 9·2	9·8261*n*	9·8540	*c*
Oct. 4 13 16 2	−4 11·45	Ret.	...	− 0 55·2	Ret.	...	9·7988*n*	9·8437	
16 13 55 20	−4 52·17	Ret.	8 18 22·35	− 1 48·7	Ret.	+20 45 27·3	9·7856*n*	9·8346	*d*

Comet V., 1892.

Greenwich Mean Time of Observation.	☄ − ✱ R.A.	No. of Comps.	Apparent R.A. of Comet.	☄ − ✱ Declination.	No. of Comps.	Apparent Declination of Comet.	Log. Fact. of Parallax R.A.	Log. Fact. of Parallax δ	Reference to Comp. ✱
Oct. 20 7 15 5	+1 39·62	Ret.	19 48 47·74	− 3 6·9	Ret.	+10 1 32·9	9·2779	9·8378	*e*
27 7 14 36	−4 19·72	Ret.	20 6 2·97	+ 1 21·2	Ret.	+ 7 30 14·6	9·3278	9·8571	*f*

Comet III., 1892.

Greenwich Mean Time of Observation.	☄ − ✱ R.A.	No. of Comps.	Apparent R.A. of Comet.	☄ − ✱ Declination.	No. of Comps.	Apparent Declination of Comet.	Log. Fact. of Parallax R.A.	Log. Fact. of Parallax δ	Reference to Comp. ✱
Nov. 11 6 56 22	+0 49·53	20	0 44 58·45	− 1 35·3	4	+38 7 54·6	9·6779*n*	9·5334	*g*
13 6 34 11	−2 52·70	15	0 44 6·83	− 2 14·8	5	+37 55 55·1	9·7067*n*	9·5545	*h*
16 7 26 40	−0 34·54	20	0 43 6·66	− 0 7·9	4	+37 37 15·8	9·5175*n*	9·4841	*i*
17 7 31 16	−0 49·67	24	0 42 51·52	− 6 39·2	5	+37 30 44·9	9·4805*n*	9·4781	*i*
20 7 29 3	+0 26·90	15	0 42 17·64	+ 8 29·4	5	+37 11 26·1	9·4311*n*	9·4768	*j*
21 6 55 30	+0 19·02	15	0 42 9·75	+ 2 7·5	5	+37 5 4·3	9·5532*n*	9·5066	*j*
22 6 19 4	+0 14·75	20	0 42 5·49	− 3 42·4	5	+36 59 14·5	9·6509*n*	9·5448	*j*
23 6 13 29	+2 41·56	20	0 42 2·82	+ 4 59·3	5	+36 52 58·2	9·6508*n*	9·5468	*l*

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Greenwich Mean Time of Observation.		☄ − ✱ R.A.	No. of Comps.	Apparent R.A. of Comet.	☄ − ✱ Declination.	No. of Comps.	Apparent Declination of Comet.	Log. Fact. of Parallax R.A.	Log. Fact. of Parallax δ	Reference to Comp. ✱
1892.	d h m s	m s		h m s	′ ″		° ′ ″			
Dec.	10 9 17 46	−1 27·11	20	0 46 26·14	+ 5 9·8	5	+35 14 24·0	9·4875*n*	9·5316	*m*
	10 9 17 46	+4 16·87	20	0 46 26·22	+ 5 0·6	5	+35 14 23·7	9·4875*n*	9·5316	*n*
	16 9 0 24	−0 14·92	15	0 50 7·19	+ 7 21·3	5	+34 46 24·3	9·5030*n*	9·5442	*o*
	16 9 0 24	−1 52·32	15	0 50 7·11	− 0 50·2	5	+34 46 25·8	9·5030*n*	9·5442	*p*
1893. Jan.	18 6 58 40	−0 31·68	20	1 24 15·70	+ 1 27·7	5	+33 38 53·9	9·3668*n*	9·5468	*q*
	20 7 59 25	+2 12·15	15	1 26 59·53	...	...	...	9·6195*n*	...	*q*
	20 8 14 11	...	...	...	+ 1 32·4	3	+33 38 58·5	...	9·5979	*q*
	27 6 37 5	+2 22·75	20	1 36 38·59	− 5 29·9	5	+33 42 33·3	9·3754*n*	9·5465	*r*
Feb.	5 7 22 18	−2 45·06	15	1 49 58·42	+ 3 57·8	2	+33 53 16·6	9·6282*n*	9·5962	*s*
	15 8 35 11	−1 54·81	Ret.	2 5 45 66	+ 4 21·6	Ret.	+34 11 46·2	9·7978*n*	9·6944	*t*
	16 8 37 23	−0 18·76	Ret.	2 7 21·71	+ 6 25·9	Ret.	+34 13 50·5	9·8029*n*	9·6993	*t*
	16 8 37 23	−0 12·82	Ret.	2 7 23·02	+12 43·0	Ret.	+34 13 42·9	9·8029*n*	9·6993	*u*
					Comet I., 1893.					
1892. Nov.	26 17 59 12	+3 9·20	20	13 6 16·53	+ 5 5·8	4	+16 9 3·7	9·6294*n*	9·8106	*v*
	30 16 4 30	−2 15·64	20	13 12 45·31	+ 4 37·6	4	+18 24 28·0	9·7713*n*	6·8406	*x*
Dec.	15 17 49 16	−0 34·13	Ret.	13 51 51·05	− 8 1·8	Ret.	+32 28 37·0	9 6433*n*	9 6259	*y*
	28 17 26 5	+3 12·10	20	15 33 50·92	− 3 57·9	5	+55 35 16·2	9 9472*n*	9·2612	*z*
	28 17 26 5	+7 41·99	20	15 33 51 27	+ 1 50·6	5	+55 35 21·4	9·9472*n*	9·2612	*aa*

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Mean Places of Stars of Comparison.

Star's Designation or Authority.	Mean R.A. Beginning of Year.	Corr. to Apparent Place.	Mean Decl. Beginning of Year.	Corr. to Apparent Place.	Letter of Ref.
	h m s	s	° ′ ″		
53 Geminorum	7 9 12·24	+1·66	+28 5 6·0	−0·5	*a*
Paris Catalogue, 9059	7 17 50·19	+1·63	+27 50 45·7	+2·5	*b*
Bonn, vol. xi. +27°, No. 1410	7 26 8·43	+1·71	+26 56 59·4	+2·2	*c*
Paris Catalogue, 10415	8 23 12·68	+1·84	+20 47 16·2	−0·2	*d*
Ast. Nach., No. 3128, p. 130	19 47 6·60	+1·52	+10 4 30·9	+8·9	*e*
M_1 23665	20 10 21·11	+1·58	+7 28 44·2	+9·2	*f*
Lund Zones, No. 330	0 44 5·98	+2·96	+38 9 3·7	+26·2	*g*
Paris Catalogue, 1102	0 46 56·59	+2·94	+37 57 43·5	+26·4	*h*
Lund Zones	0 43 38·28	+2·92	+37 36 57·0	+26·7	*i*
Lund Zones, No. 335	0 41 47·88	+2·86	+37 2 29·6	+27·1	*j*
Lund Zones, No. 73, 94	0 39 18·46	+2·74	+36 47 31·3	+28·3	*l*
Leiden Zones, No. 235	0 47 50·53	+2·72	+35 8 46·0	+28·2	*m*
Leiden Zones, No. 324	0 42 6·70	+2·65	+35 8 55·0	+28·1	*n*
Leiden Zones, No. 324	0 50 19·46	+2·65	+34 38 35·0	+28·0	*o*
$W_2 0^h$ No. 1279	0 51 56·78	+2·64	+34 46 47·9	+28·0	*p*
Leiden Zones, No. 343	1 24 48·24	−0·86	+33 37 18·0	+8·2	*q*
Leiden Zones, No. 903	1 34 16·76	−0·92	+33 47 55·1	+8·1	*r*
Leiden Zones, No. 396	1 52 44·43	−0·95	+33 49 10·6	+8·2	*s*
Leiden Zones, No. 239	2 7 41·50	−1·03	+34 7 16·7	+7·9	*t*
Paris Observations, 1882	2 7 36·87	−1·02	+34 0 52·0	+7·7	*u*
Romberg, 6099	13 3 6·04	+1·29	+16 4 13·4	−15·5	*v*
$Armagh_2$, No. 1553	13 14 59·61	+1·34	+18 20 8·3	−17·9	*x*
W. B., xiii. No. 1120	13 52 23·77	+1·41	+32 37 4·1	−25·3	*y*
Hels. Zones, 86, 87	15 30 38·89	−0·07	+55 39 42·1	−28·0	*z*
O. A., No. 15423	15 26 9·28	0·00	+55 33 59·1	−28·3	*aa*

Liverpool Observatory:
1893 *April* 13.

Galactic Longitudes and Latitudes of the brighter Stars in a Zone of the Heavens containing the Milky Way. By A. Marth.

(*Continued from page* 109.)

Galactic		Magn.		Star.		α			δ	
Long.	Lat.	H.P.	U.A.			1880.				
°	°	m	m			h	m	s	°	
180·03	− 9·04	5·6	6·2		Monocerotis	6	8	41	− 4	32·1
180·25	+ 1·45	...	cum.		„ $8^{\mathrm{m}}\cdot5$	6	45	31	+ 0	30·6
180·45	− 9·02	6·0	6·3		„	6	9	35	− 4	52·6
180·53	−24·60	5·2	5·7	7 ν	Leporis	5	14	25	−12	26·4
180·63	+ 7·73	5·5	5·9		Monocerotis, Canis min.	7	8	3	+ 3	18·9
180·67	−12·34	5·0	5·8		Orionis, Monocerotis	5	58	24	− 6	42·3
181·31	− 0·11	...	6·2		Monocerotis	6	42	14	− 1	11·2
181·33	−25·07	4·3	4·1	6 λ	Leporis	5	14	3	−13	18·1
181·38	−17·33	2·2	2·3	53 κ	Orionis	5	42	4	− 9	42·8
181·46	−10·60	5·0	5·9		Monocerotis	6	6	1	− 6	31·5
181·58	− 9·81	4·0	4·3	5	„	6	9	0	− 6	14·4
181·81	+14·23	0·5	1·2	10 α	Can. min. (Procyon)	7	33	1	+ 5	31·9
181·83	− 6·23	5·0	5·4	10	Monocerotis	6	22	2	− 4	41·4
181·89	+ 1·31	5·2	5·9		„	6	48	19	− 0	58·7
182·08	−20·61	6·0	6·5		Orionis, Leporis	6	31	33	−11	51·0
182·26	− 1·37	...	6·1		Monocerotis	6	43	14	− 2	8·3
182·54	−24·55	5·1	5·7	8	Leporis	5	18	1	−14	2·5
182·63	−14·81	5·1	5·7	2	Monocerotis	5	53	23	− 9	34·1
182·80	+11·92	5·6	6·2	8 δ_2	Canis minoris	7	26	54	+ 3	32·7
182·82	+24·20	3·8	3·5	17 β	Cancri	8	10	0	+ 9	33·2
183·26	+ 5·41	...	6·0	21	Monocerotis	7	5	16	− 0	6·3
183·28	− 4·57	5·2	5·9		„	6	30	41	− 5	6·8
183·34	− 5·80	5·7	6·0		„	6	26	31	− 5	46·9
183·49	+ 5·42	4·0	4·6	22	„	7	5	44	− 0	17·7
183·54	− 9·50	5·1	5·9	7	„	6	13	56	− 7	46·4
183·89	+11·01	5·1	5·9	7 δ_1	Canis minoris	7	25	52	+ 2	10·4
183·91	−14·70	4·8	5·6	3	Monocerotis	5	56	12	−10	36·0
183·93	− 7·14	3·9	4·1 tr.	11	„	6	23	0	− 6	57·4
184·01	−13·75	5·9	6·4		„	5	59	47	−10	14·2
184·84	−10·43	5·7	6·0		„	6	13	8	− 9	20·6
184·92	+18·80	5·6	6·0		Canis minoris	7	54	53	+ 5	12·5
185·29	− 7·03	5·6	6·0		Monocerotis	6	26	4	− 8	4·4
185·64	+ 1·63	4·8	5·5	19	„	6	56	57	− 4	4·0